AMENDMENTS TO THE CLAIMS

1. (Currently amended) A process for the production of chloramine comprising supplying a first reagent stream comprising chlorine gas and a second reagent stream comprising ammonia gas to a reaction zone maintained at a temperature of less than 250°C. ~~275°C.~~ and configured to allow expansion of the first and second reagent streams in the reaction zone to an extent sufficient to generate chloramine as a gas and ammonium chloride as a free falling solid.

2. (Original) A process according to claim 1 wherein the reaction zone is configured such that at least about 90% of the generated ammonium chloride is formed at least about 10 mm away from any wall of the reaction zone.

3. (Original) A process according to claim 1 wherein the reaction zone is bounded towards its top by a reagent supply zone, from which the first and second reagent streams are supplied to the reaction zone.

4. (Original) A process according to claim 3 wherein the reaction zone is bounded towards its bottom by a solids recovery zone, from which solid ammonium chloride is recovered or collected.

5. (Original) A process according to claim 4 wherein the reaction zone is bounded by side walls or a continuous side wall extending between the reagent supply zone region and the product recovery zone.

6. (Original) A process according to claim 5 wherein the side walls or the continuous side wall bounding the reaction zone circumscribe an expansion region into which chlorine and ammonia from the reagent streams expand before reacting to form chloramine and ammonium chloride.

7. (Original) A process according to claim 6 wherein the expansion region is configured to provide a laminar flow region for the reaction between chlorine and ammonia to take place.

8. (Original) A process according to claim 6 wherein the expansion region is of a size sufficient to allow at least 60% of the chlorine gas to react before contacting the side walls or the continuous side wall.

9. (Currently amended) A process for the production of chloramine comprising: providing chlorine gas and ammonia gas to a reaction zone maintained under conditions effective

for chlorination of ammonia, and at a temperature of less than 250°C. ~~275°C.~~, the reaction zone having a laminar flow region for receiving the chlorine gas and the ammonia gas supplied thereto, whereby chloramine is produced.

10. (Original) A process according to claim 9 wherein the laminar flow region is bounded by a Reynolds Number of not more than 2000.

11. (Currently amended) A chemical reactor suitable for the production of chloramine, the reactor comprising: a reagent supply zone above a product recovery zone, and a reaction zone bounded by side walls or one continuous side wall extending between the reagent supply zone and the product recovery zone, the reagent supply zone comprising means for supplying, separately, chlorine reagent gas and ammonia reagent gas to the reaction zone, at least one of the supply means being configured to direct a reagent gas into a laminar flow region of the reaction zone, wherein the reaction zone is configured to be maintained at a temperature of less than 250°C.

12. (Currently amended) A reactor according to claim 11 ~~wherein the reaction zone is configured to be maintained at a temperature of less than 275°C.~~ and configured to allow expansion of the reagent gas in the reaction zone to an extent sufficient to generate chloramine as a gas and ammonium chloride as a free falling solid.

13. (Original) A reactor according to claim 11, wherein the supply means comprises at least one injection nozzle.

14. (New) A process according to claim 1, wherein the reaction zone is maintained at a temperature of less than 200°C.

15. (New) A process according to claim 1, wherein the reaction zone is maintained at a temperature of less than 150°C.

16. (New) A process according to claim 1, wherein the reaction zone is maintained at a temperature of less than 100°C.

17. (New) A process according to claim 1, wherein the reaction zone is maintained at a temperature of less than 50°C.

18. (New) A process according to claim 1, wherein the reaction zone is maintained at ambient temperature.

19. (New) A process according to claim 9, wherein the reaction zone is maintained at a temperature of less than 200°C.

20. (New) A process according to claim 9, wherein the reaction zone is maintained at a temperature of less than 150°C.

21. (New) A process according to claim 9, wherein the reaction zone is maintained at a temperature of less than 100°C.

22. (New) A process according to claim 9, wherein the reaction zone is maintained at a temperature of less than 50°C.

23. (New) A process according to claim 9, wherein the reaction zone is maintained at ambient temperature.

24. (New) A reactor according to claim 11, wherein the reaction zone is configured to be maintained at a temperature of less than 200°C.

25. (New) A reactor according to claim 11, wherein the reaction zone is configured to be maintained at a temperature of less than 150°C.

26. (New) A reactor according to claim 11, wherein the reaction zone is configured to be maintained at a temperature of less than 100°C.

27. (New) A reactor according to claim 11, wherein the reaction zone is configured to be maintained at a temperature of less than 50°C.

28. (New) reactor according to claim 11, wherein the reaction zone is configured to be maintained at ambient temperature.